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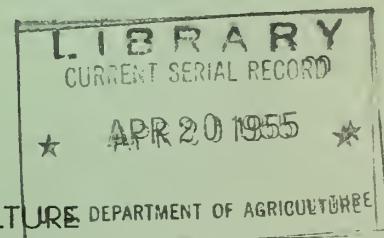
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Federal-State Cooperative
Snow Surveys and Water Supply Forecasts
for

ARIZONA

SOIL CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE



Data included in this report were obtained by the agency named above in cooperation with the Federal, State and local organizations listed on the last page of this report.

— AS OF —
MARCH 15, 1955

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY
AND WATER SUPPLY FORECAST REPORTS:

Forecasts by U. S. Weather Bureau of total annual streamflow October-September, inclusive, at more than 300 gaging stations are issued monthly January through May in the publication WATER SUPPLY FORECASTS FOR THE WESTERN UNITED STATES.

Weather Bureau forecasts of runoff presented in that bulletin are computed from procedures based on mathematical analysis of the relation between precipitation and runoff.

The Weather Bureau bulletins may be secured by writing to:

Hydrologist in Charge
River Forecast Center
U. S. Weather Bureau
712 Federal Office Building
Kansas City 6, Missouri

For current information on local river and flood conditions, reference should be made to the appropriate River District Office, listed below:

Meteorologist in Charge.....Colorado River and
Weather Bureau Airport Station tributaries in Arizona
3000 Sky Harbor Blvd., except San Juan
Phoenix, Arizona

State of Arizona

COOPERATIVE SNOW SURVEYS and WATER SUPPLY FORECASTS

for

A R I Z O N A

(Salt, Verde, Gila
and
part of Lower Colorado River Basin)

Issued

March 15, 1955

Report Prepared
By

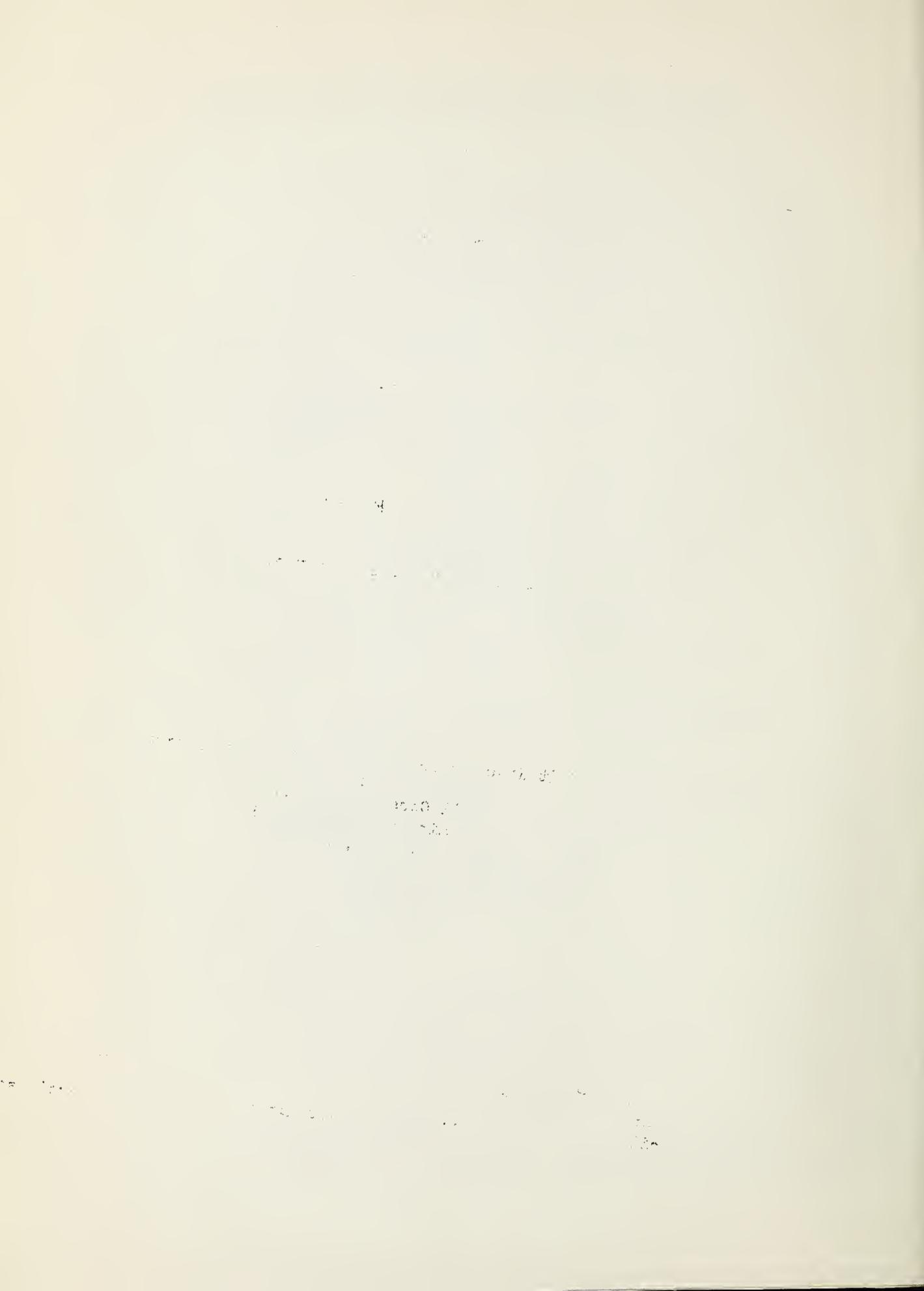
W. E. Anderson, Snow Survey Leader

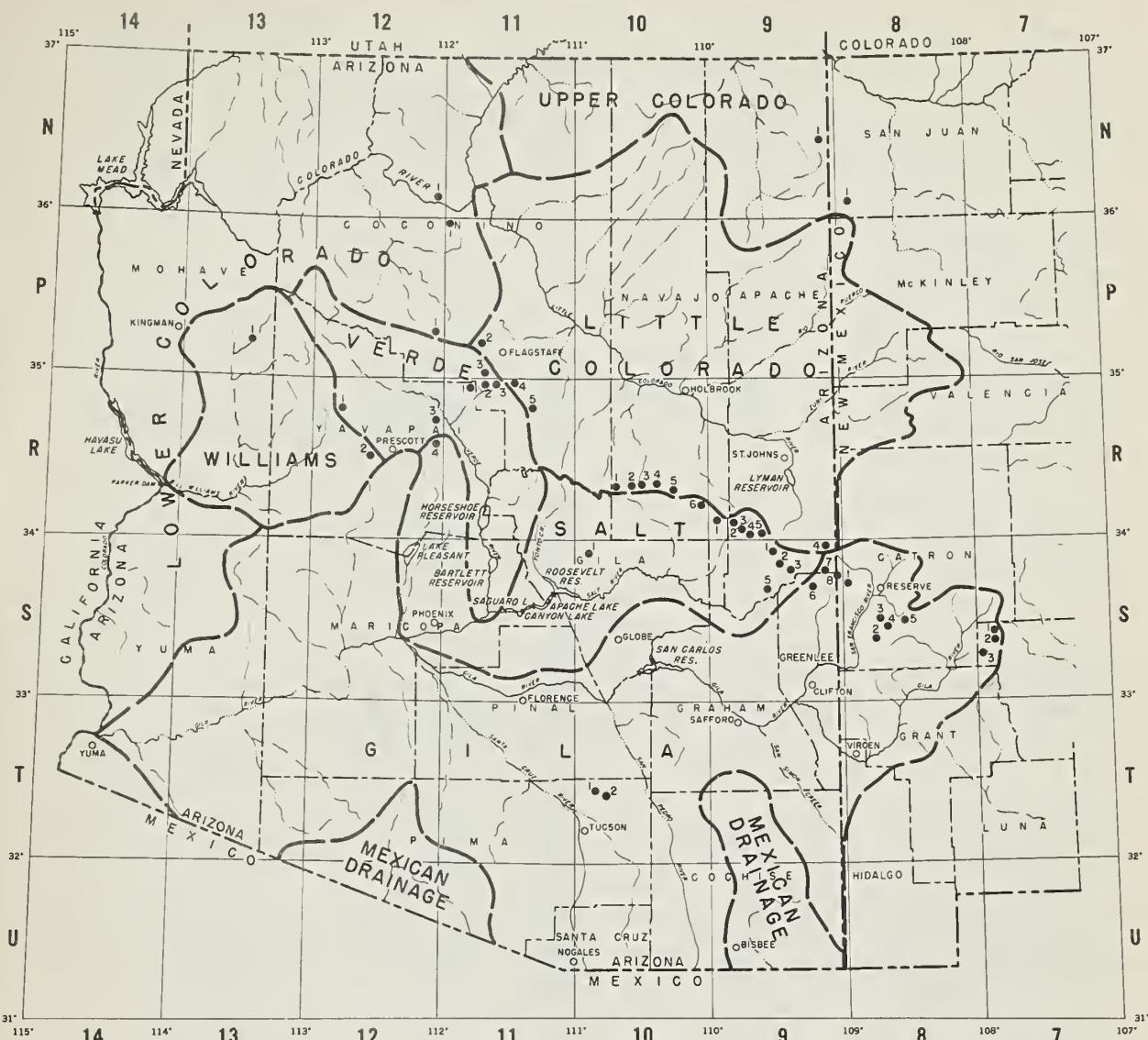
Salt River Valley Water Users' Association
and
Soil Conservation Service
Main Post Office Bldg.
Phoenix, Arizona

Issued By

Robert V. Boyle
State Conservationist
Soil Conservation Service

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President
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LEGEND

- DRAINAGE BASIN BOUNDARY
- 13 ● SNOW COURSE

ARIZONA COOPERATIVE SNOW SURVEYS

SNOW COURSES AND DRAINAGE BASINS
JANUARY 1955

0 40 80 120 160 200
SCALE IN MILES

INDEX TO SNOW COURSES

NUMBER	NAME	SEC	TWP	RGE**	ELEVATION	RIVER BASIN
11-P-3	Antelope Park	29	19N	8E	7300	Verde # Discontinued
9-S-1	Baldy	28	7N	27E	9000	Salt-Little Colorado
10-T-1	Bear Wallow	6	12S	16E	8100	Gila
9-S-6	Beaver Head	13	4N	30E	8000	Salt-Frisco
9-S-3	Big Lake Knoll	2	5N	28E	8800	Salt-Frisco-Little Colorado .. Discontinued
7-S-3	Black Canyon	8	13S	11W***	6790	Gila
12-N-1	Bright Angel	34	33N	3E	8400	Lower Colorado
12-R-1	Camp Wood	3	16N	6W	5700	Williams-Verde
10-R-3	Canyon Creek (s)	18	11N	15E	7500	Salt
11-R-2	Casner Park (s)	19	18N	8E	6950	Verde
12-P-1	Chalender (s)	27	22N	3E	7100	Verde
8-S-3	Corner Mountain	7	10S	17W***	8850	Gila-Frisco
9-S-7	Coronado Trail	26	5N	30E	8000	Salt-Frisco
10-R-2	Elk	31	11N	14E	7600	Salt-Little Colorado Discontinued
10-R-6	Forest Dale (s)	2	9N	21E	6000	Salt-Little Colorado
12-R-4	Gaddes Canyon	11	15N	2E	7600	Verde #
10-R-5	Gentry	36	11N	15E	7600	Salt-Little Colorado
11-P-2	Fort Valley	22	22N	6E	7350	Verde #
9-R-5	Ft. Apache	18	7N	27E	9160	Salt-Little Colorado
8-S-1	Frisco Divide	31	6S	20W***	8000	Frisco-Gila
11-P-1	Grand Canyon	21	30N	4E	7500	Lower Colorado
11-R-5	Happy Jack	30	17N	9E	7630	Verde
10-R-4	Heber	28	11N	15E	7600	Salt-Little Colorado
7-S-2	Inman	6	11S	10W***	7800	Gila
12-R-2	Iron Springs	22	14N	3W	6200	Williams-Verde
9-S-2	Maverick Fork (s)	13	6N	27E	9050	Salt-Little Colorado
9-R-4	McKay Peak	13	7N	24E	8250	Salt Not read
9-R-2	McNary (s)	14	8N	23E	7200	Salt-Little Colorado
9-R-1	Milk Ranch	28	8N	23E	7000	Salt
12-R-3	Mingus Mountain	3	15N	2E	7100	Verde #
8-S-2	Mogollon	2	11S	19W***	7000	Frisco-Gila
11-R-4	Mormon Lake	13	18N	8E	7350	Verde #
11-R-3	Mormon Mountain(s)	14	18N	8E	7500	Verde
11-R-1	Munds Park (s)	7	18N	7E	6500	Verde
8-S-4	N-Bar Lake	16	10S	17W***	8600	Gila
8-S-5	Negrito	6	10S	16W***	8200	Gila
9-S-4	Nutrioso	23	6N	30E	8500	Salt-Frisco-Little Colorado
9-S-5	Pacheta	At town of Maverick, Ariz.				Salt
9-N-1	Roof Butte	15	8N	6W****	8500	Little Colorado # Not read
10-T-2	Rose Canyon	15	12S	16E	7300	Gila
9-S-8	State Line	6	6S	21W***	8000	Gila-Frisco
7-S-1	Taylor Creek	20	10S	10W***	7850	Gila
9-R-3	Trout Creek	5	7N	24E	6400	Salt Not read
8-N-1	Washington Pass	Lat. 36°05'N. Long. 108°50'W. §				Little Colorado # Not read
13-P-1	Willow Ranch	16	21N	11W	5000	Williams
10-R-1	Woods Canyon	15	11N	13E	7640	Salt-Little Colorado Discontinued
10-S-1	Workman Creek	33	6N	14E	6900	Salt

* Number indicates location of course within coordinate rectangle, thus 9-N-1 is Course #1 in coordinate rectangle 9-N.

** All in Gila and Salt River Base and Meridian except where otherwise indicated.

*** New Mexico Principal Meridian.

**** Navajo Base.

On adjacent drainage.

(s) Soil Moisture Station installed on or in vicinity of course.

§ Unsurveyed.

WATER SUPPLY OUTLOOK

ARIZONA

March 15, 1955

*
*
* The mountain snow pack has practically disappeared *
* during the past two weeks and there is no prospect *
* for increased runoff if present conditions persist. *
* Runoff forecasts made on March 1 have been revised *
* sharply downward. *
*
* *

GENERAL

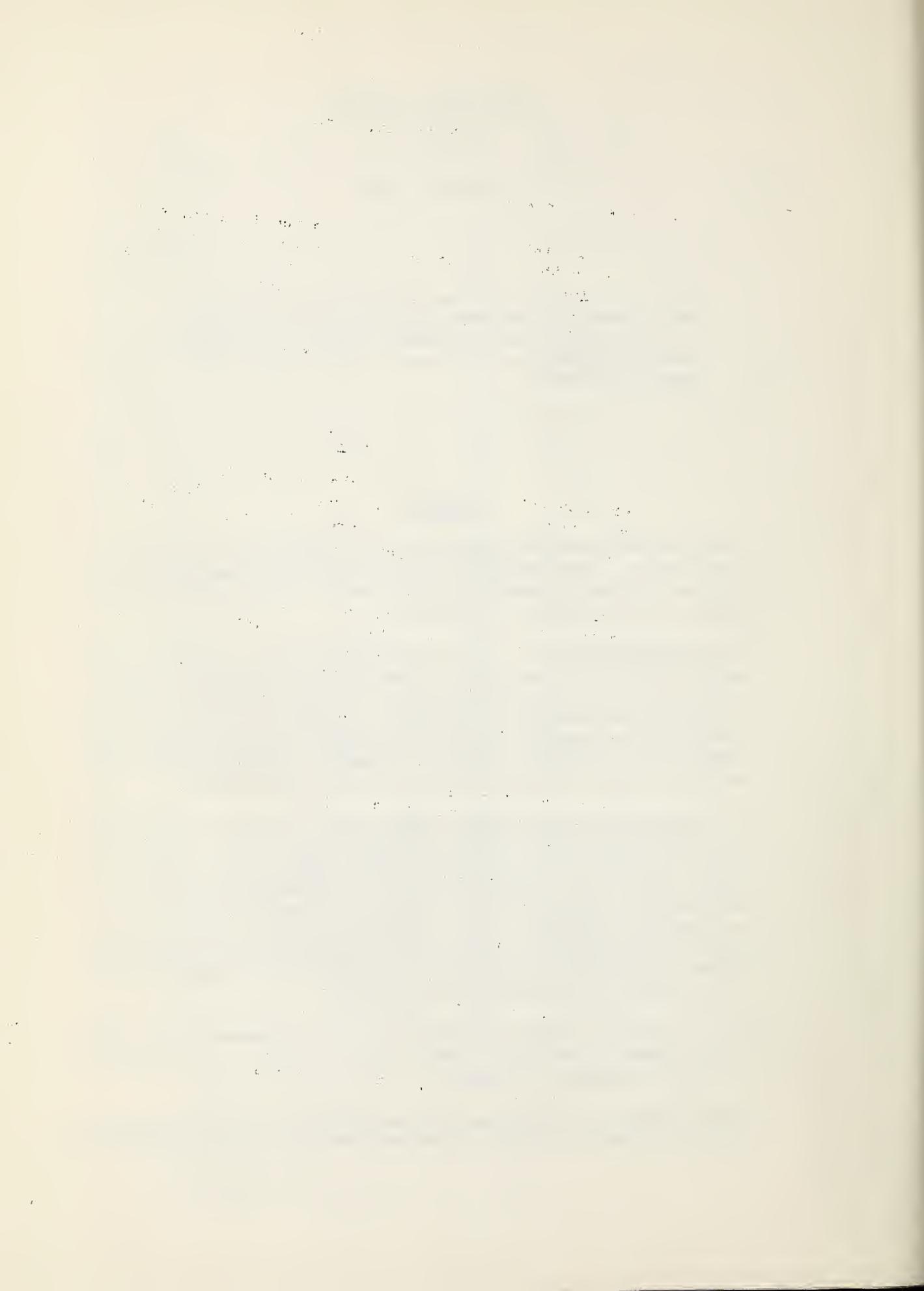
There has been serious depletion of the snow cover since the last report, due to high temperatures and wind movement. Snow courses at lower elevations are all bare, and only spotty snow remains at the higher elevations.

Considerable amounts of snow water have been lost to evaporation and the dry soils have absorbed most of the remainder. Practically all of the snow melt is going into the ground and there is very little runoff occurring. Soils have generally received substantial amounts of moisture and are wet, but in many areas they have not yet been filled to capacity and would retain much additional water without runoff if it were available.

The surface soils are drying rapidly where the snow has disappeared and are already dusty in many places. Soils at some elevations may well be dry by the time range grasses would normally start to grow unless additional precipitation occurs in amounts sufficient to offset evaporation losses and maintain soil moisture content. Total moisture available from fall and winter precipitation has been so deficient that good spring and summer rains will be necessary if any substantial benefits are to be realized from the snow melt water.

Present Weather Bureau forecasts are for a continuation of above-normal temperatures and for only limited amounts of precipitation to offset evaporation losses.

Streams that are running are all low and clear. Some are bridged across with snow. At many locations, there has been insufficient



moisture remaining to start stream flow after the soil has been soaked. Road borrow pits have been observed where the melting snow did not produce any flow in the ditches.

Snow is generally well-ripened. It is "grainy" and quite heavy with water. The bottom of the snow pack is wet with free water. Water is standing on the surface and in the snow in many spots. The rate of melting is quite rapid but the total available moisture has been insufficient to overcome the loss necessary to prime the soils. It appears that substantially all of the runoff that will occur is now taking place and that little snow or water will remain at the end of the next two weeks.

Stream flows generally are at levels much below normal, with record lows being established on some rivers. Forecasted runoff is among the lowest years on record, and average conditions could be established only by the occurrence of precipitation several hundred percent above normal.

Reservoir storage has remained about the same as reported in the March 1 report. No substantial increase can be expected as a result of snow melting.

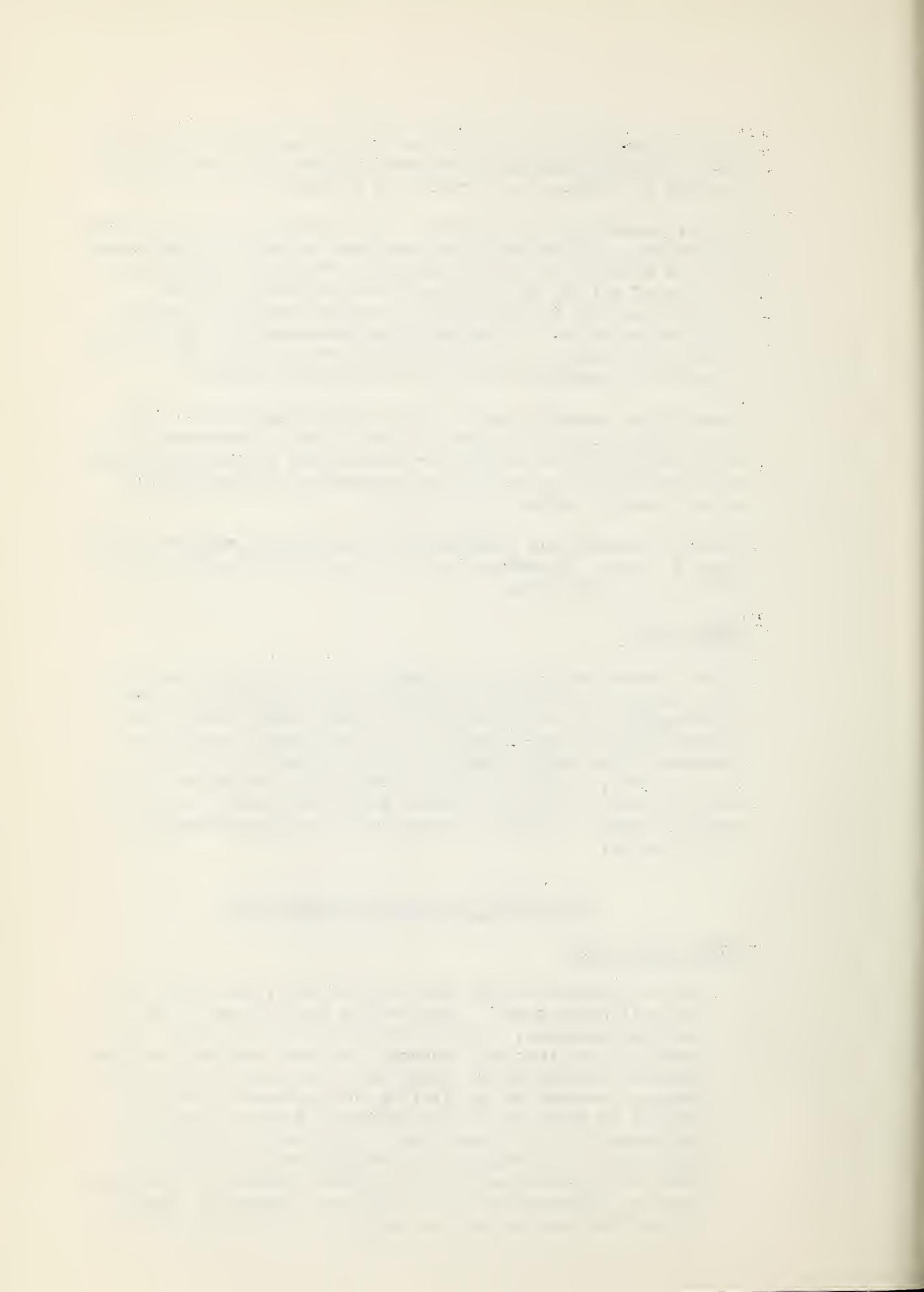
SPECIAL NOTE

Unless unusual conditions or a major storm occurs, it appears there will be no further information to be reported this year. Accordingly, this report will be the last issued this season unless unforeseen developments occur which would warrant the issuance of the regular April 1 report. Runoff forecasts in this bulletin, therefore, will be considered the official seasonal forecast, but for the period indicated, unless there is reason to issue the April 1 report with resulting changes in the forecasts.

SNOW COVER AND WATERSHED CONDITIONS

VERDE RIVER BASIN

While conditions on the east side of the Verde River Basin are well below normal, they are the best of any on the Arizona Drainages. Soil moisture conditions reflect the rapid melting that has occurred, and are much improved over conditions reported two weeks ago. The increase in soil moisture content is paralleling the decrease in snow water content as reported for the different courses. Soils at the Munds Park and Casner Park Soil Moisture Stations are saturated to approximate field holding capacity to four feet in depth, and snow has completely melted on these snow courses. Approximately half the snow reported on March 1 at the Chalender course has melted, and the upper two feet



of the soil at the Chalender Soil Moisture Station is wet, with considerable moisture in the third foot of soil. On Mormon Mountain, somewhat more than half the snow remains, while only the upper foot of the soil contains appreciable amounts of moisture.

The west side of the Verde basin is clear of snow except at a few isolated protected locations of insignificant area. Precipitation over the entire basin has been very light, and temperatures have been consistently above normal.

The Verde River crested at 879 second feet on the 14th. This might well be the seasonal peak and if so emphasizes the critically low runoff that is expected. A series of warm nights would help to release additional water, while colder weather would tend to hold it up. The river has been dropping rapidly since the 14th and stages have not yet stabilized.

Forecasted runoff for the March through May period is for only 26% of the 1943-52 ten year average. This compares with the water content of the remaining snow cover which is 44% of normal, but with large amounts of water due to still be absorbed by the soils, particularly in areas where the melting has not progressed very far.

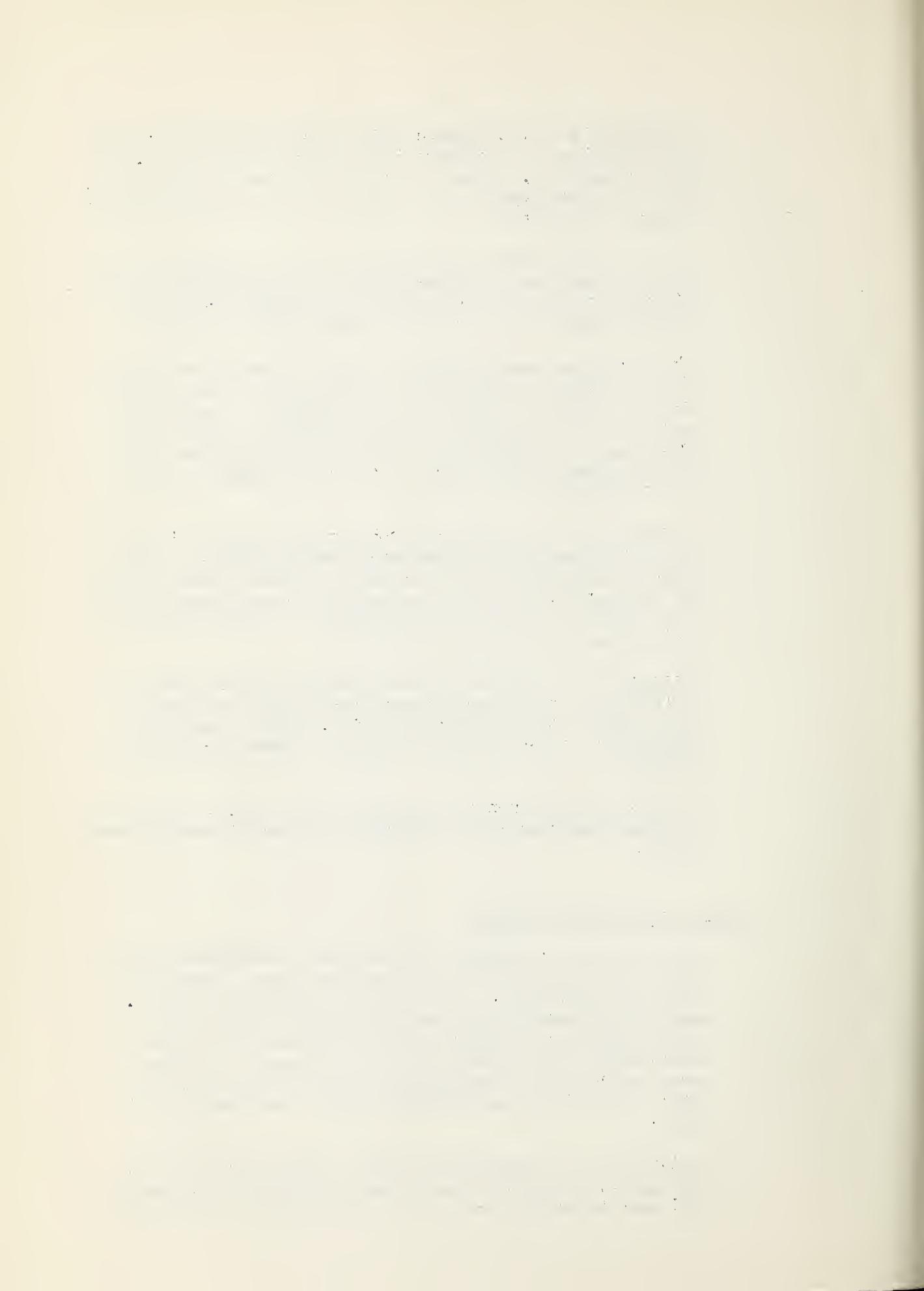
Storage in the Verde River reservoirs has changed only slightly and remains at approximately 88% of average for this date, but only 23% of capacity. There is no possibility that these reservoirs will fill under present conditions.

Lake Mary and Mormon Lake remain at low levels. Only unimportant increases are anticipated in the storage in these lakes.

SALT and TONTO RIVER BASINS

Snow has gone completely from the lower elevations on this basin, and is very sparse even at the higher elevations in the White Mountains. It is only in the vicinity of Mt. Baldy that there remains any appreciable amount, and even here the dry soils which remain will claim much of the water before it can run off into the streams. Average water content of the courses on this drainage basin is at 26% of normal, and only slightly above last year at this time.

Ablation of the snow pack has been rapid during the past two weeks, and most of the drainage area is bare. Snow is all gone below 8500 feet, and is spotty above that eleva-



tion. It was possible to drive a sedan up the Greer Road out onto the mountain top meadows during the snow measuring period. Remaining snow is insufficient to produce increased rates of runoff. The Salt peaked at 328 second feet on the 15th and this could easily be the seasons peak unless changes in weather conditions occur. Tonto flow is decreasing, and there is a possibility that forecast amounts are too high on this stream.

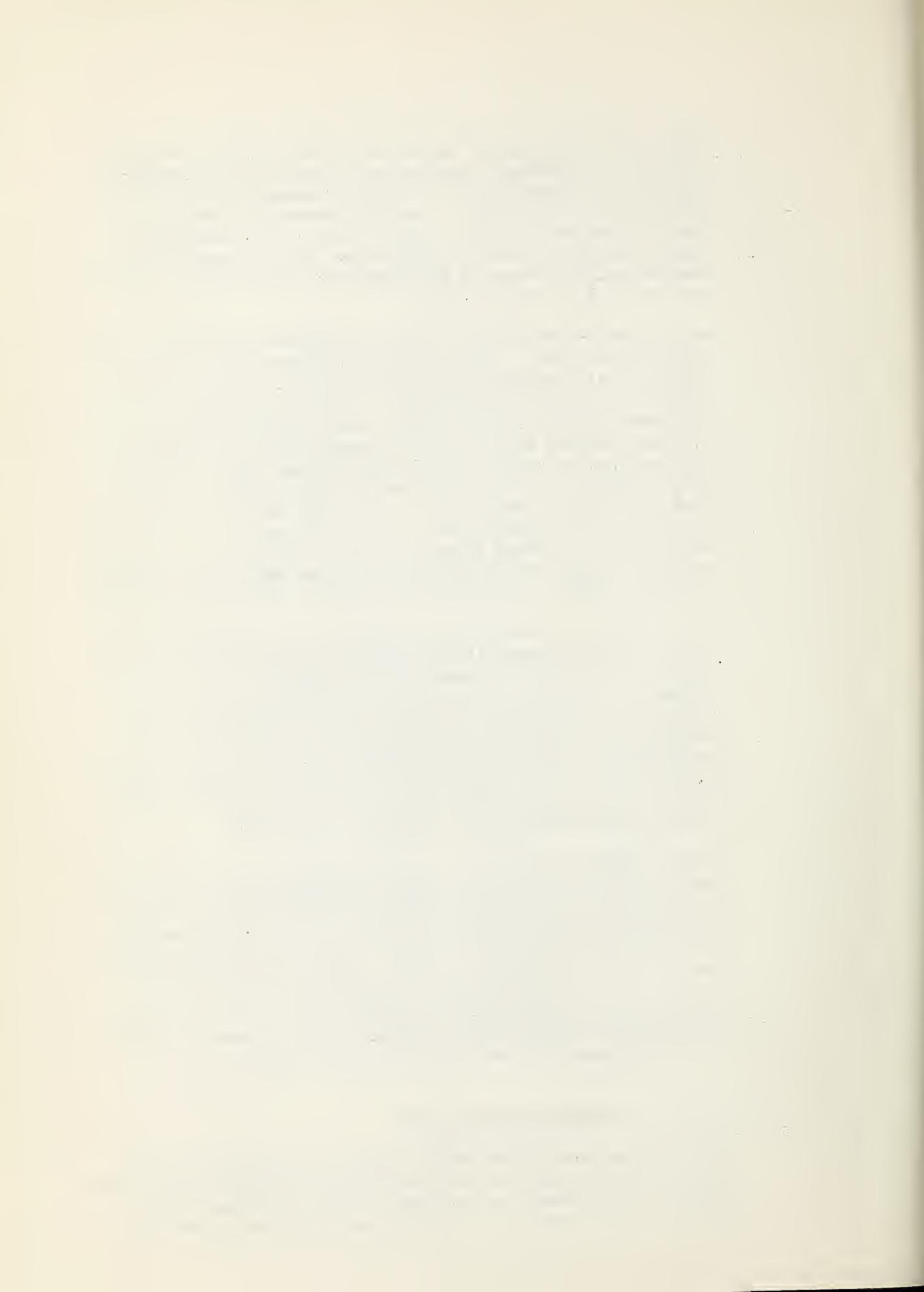
Soil moisture conditions on the Salt Watershed are much like those on the Verde. The Canyon Creek Snow Course is bare, and soils at the Canyon Creek Soil Moisture Gage are saturated to field holding capacity. At the Corduroy Creek Soil Moisture Gage, near Forest Dale, the ground is bare but there was insufficient moisture in the snow to saturate more than the top foot of soil. Similar conditions exist at McNary, where there is only approximately 3 inches of moisture per foot of depth in the soil, far below its holding capacity. However, at Black River Divide, the soil moisture gage shows only a minor increase in soil moisture content. This gage is located between the Maverick Fork and Baldy snow courses, where only 30% of the snow has melted in the past two weeks.

Snow melting on this drainage has been very orderly and slow. There has been little runoff down borrow pits and at similar locations. Streams are all small and clear and there is not enough snow remaining to cause them to rise. Surface soils are drying rapidly and it is possible the range grasses will not benefit too greatly from the snow water unless additional precipitation occurs soon. There is dust on some roads on the upper mountain area. The weather has been unusually warm, and it was quite comfortable in shirt sleeves at 8500 feet early in the morning.

Stream flows have been at record low stages. The U.S. Geological Survey reports the lowest February runoff on record, 29% of normal. Reservoir storage on the Salt River is approximately 790,000 acre feet, 110% of the 10-year average but only 45% of capacity. There is no possibility of filling the reservoirs under present conditions. Total storage in the Salt and Verde system is sufficient, with careful management, to meet irrigation requirements this year, but there will be only limited amounts for carry-over this fall unless substantial flows occur from precipitation.

GILA and SAN FRANCISCO RIVER BASINS

All of these basins are bare except the very highest elevations. Soils are dry and the early snow melt has permitted loss of much needed soil moisture from the gramma grass ranges. Snow line is above 8500 feet, approaching the ele-



vations of the higher passes. Precipitation on the basin continues below normal and droughty conditions are expected if the present trend continues. There was insufficient moisture in the winter to bring any but the larger and more permanent streams up. Little runoff from melting snow is occurring. Stream flow is at very low stages and there is no reason to anticipate any improvement. Conditions on the watershed are such that they are below the bottom of our forecast curves and forecast amounts have been extrapolated with some possibility of error. Present indications are that any deviation would be to below the forecast amounts. There has been little change in the storage in San Carlos reservoir, which continues at much below average levels.

LITTLE COLORADO RIVER BASIN

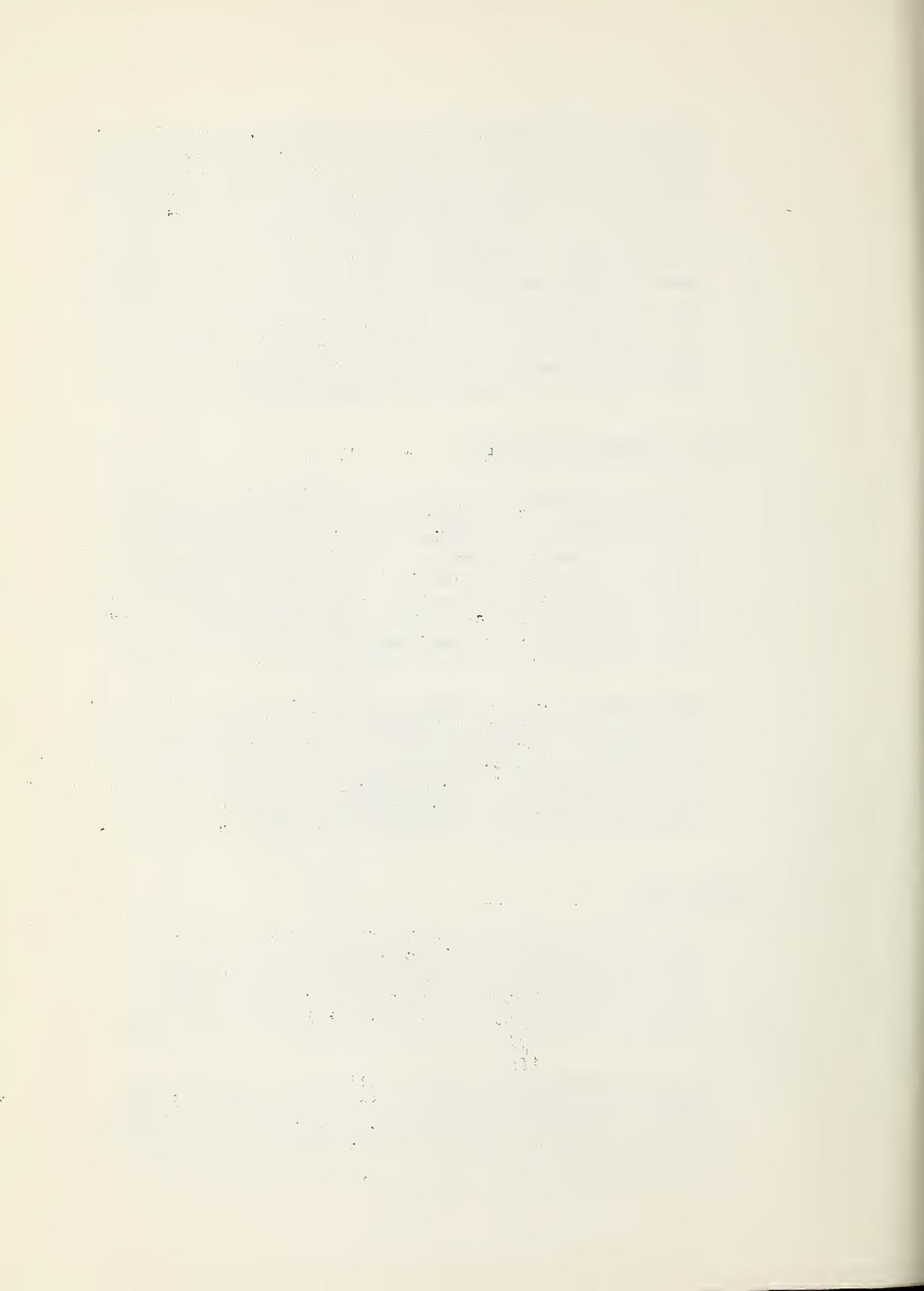
This basin borders on the Salt and Verde River drainages and conditions on its upper part is the same as reported for those rivers. Snow has completely disappeared from the lower gramma grass areas and these may become very dry before the grass starts to green up. There is almost no snow left available for runoff. Greer Lakes are still much below capacity and will intercept considerable volumes of the remaining water. Lyman Dam is very low and has prospects of only a very limited runoff.

Showlow Lake is at extremely low levels. All the snow is gone from the drainage of Showlow Creek and there is no possibility of much runoff into this lake. No reports have been received of conditions on Daggs Reservoir, Long Lake or other reservoirs. Substantially all the snow had disappeared from the Rim country and only limited runoff can be expected from Clear and Chevalon Creeks.

OTHER BASINS

The conditions previously reported for the Bill Williams Basin still exist. The same is true for the Agua Fria River. No snow runoff is anticipated on these basins. Granite Dells reservoir is very low, and Lake Pleasant remains at approximately the same elevation as previously reported.

Snow has been melting rapidly on the lower Colorado River Basin and conditions now are approximately 72% of average in water content. Storage on the Colorado River reservoirs continues much below normal and has decreased slightly during the past two weeks.

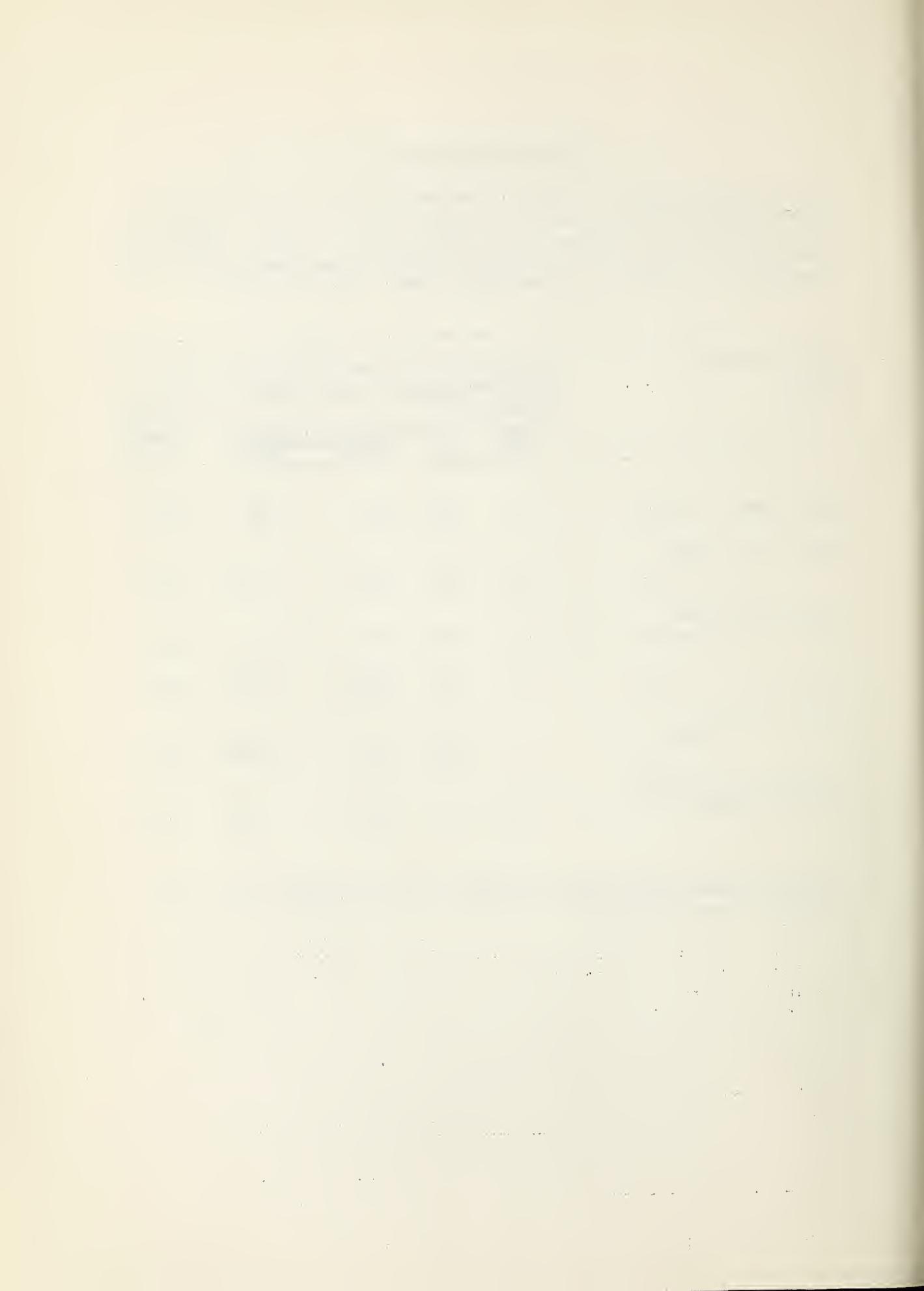


STREAM FLOW FORECASTS MARCH 15, 1955

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature during the forecast period will be near average. Appreciable deviations from normal of temperature and/or precipitation during the forecast period will correspondingly modify these forecasts.

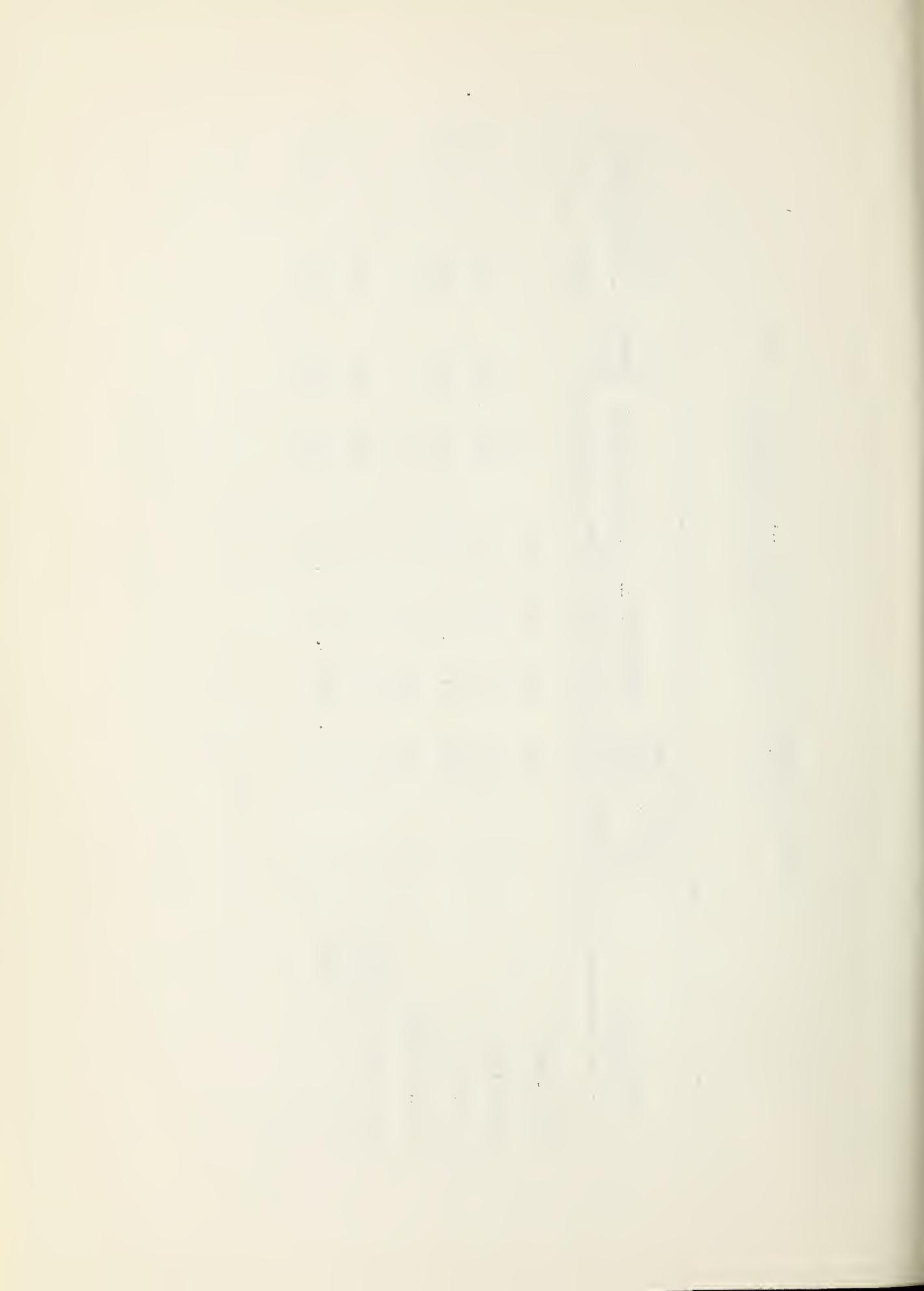
Basin, Stream and Station	Seasonal Streamflow in Thousands of Acre Ft.				
	Forecast Period March - May, inclusive		10 - Yr.		
	Runoff 1955	% 10-Yr. Ave.	Measured Runoff 1954	Average 1953	Average 1943-52
Salt River at intake	45	19	214	128	240.8
Tonto River above Roosevelt	5	16	29.5	25.1	30.4
Verde River above Horseshoe	40	26	163	40	153.8
Gila River at Virden	10	29	20.6	22.2	35.0
Frisco River at Clifton	8	26	27.9	14.2	31.2
Little Colorado River Above Lyman Dam	0.6	8	1.7	1.5	7.7*

* Forecast period for Little Colorado River above Lyman Dam is for March - June, inclusive.



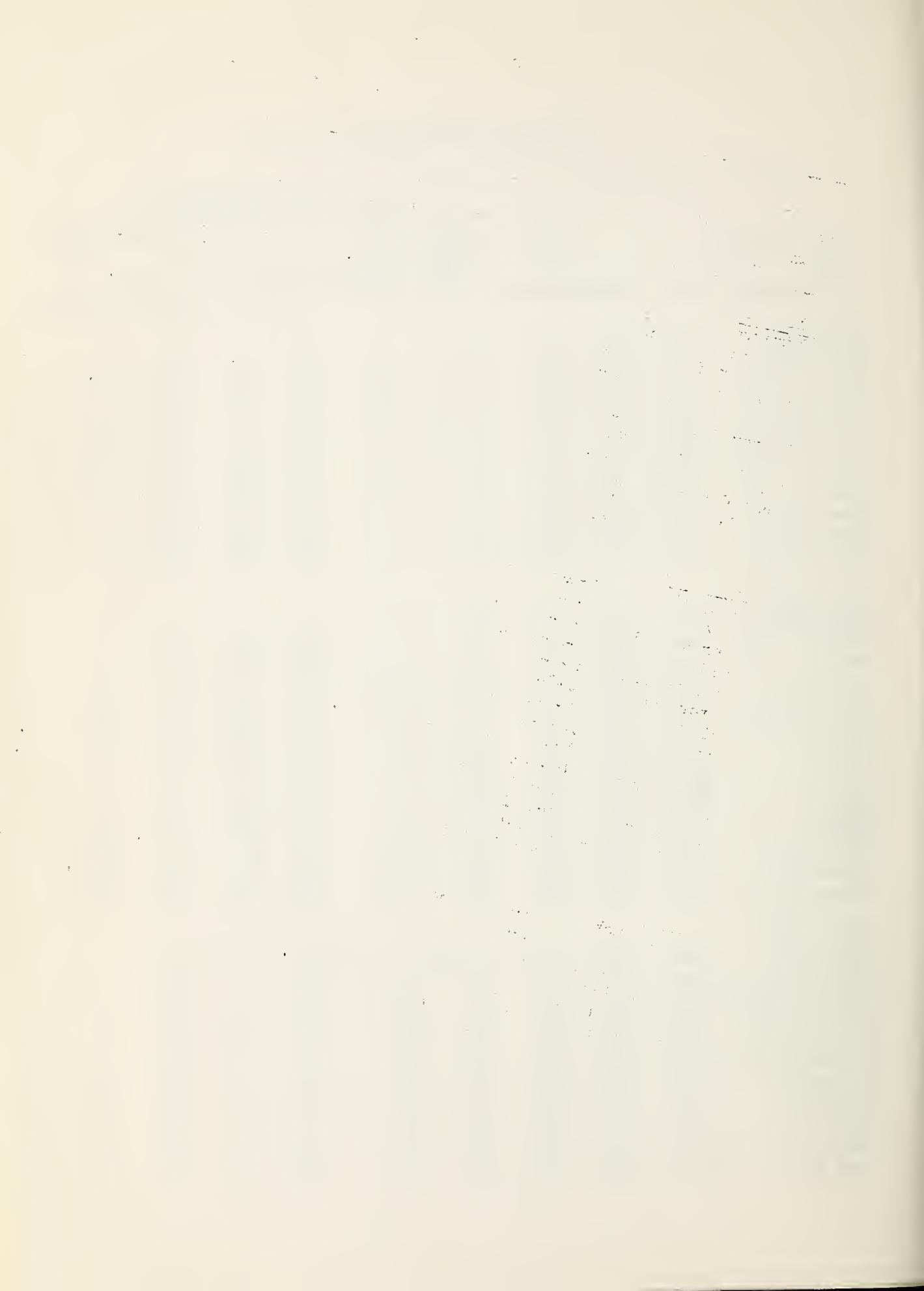
SUMMARY OF MARCH 15 SNOW SURVEYS AND COMPARISON OF DATA
WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

WATERSHEDS	No. of Courses in	Snow Depth 1955	Snow Water Content in Inches			Snow Density 1955	1955 Average %	1954 Average %	1955 Water Content in percent of Average
			Average Inches	1955	1954				
Gila River	9	0.0	0.0	0.0	0.5	1.3	-	-	-
Salt River	14	2.8	0.9	0.6	2.7	3.4	32.	150.	26.
Verde River	9	2.9	1.1	0.1	0.3	2.5	38.	1100.	44.
Williams River	3	0.0	0.0	0.0	0.0	0.5	-	-	-
Lower Colorado River	4	11.1	3.3	1.1	1.5	4.6	30.	300.	72.
Little Colorado River	9	2.2	0.8	0.1	1.0	2.8	36.	800.	29.



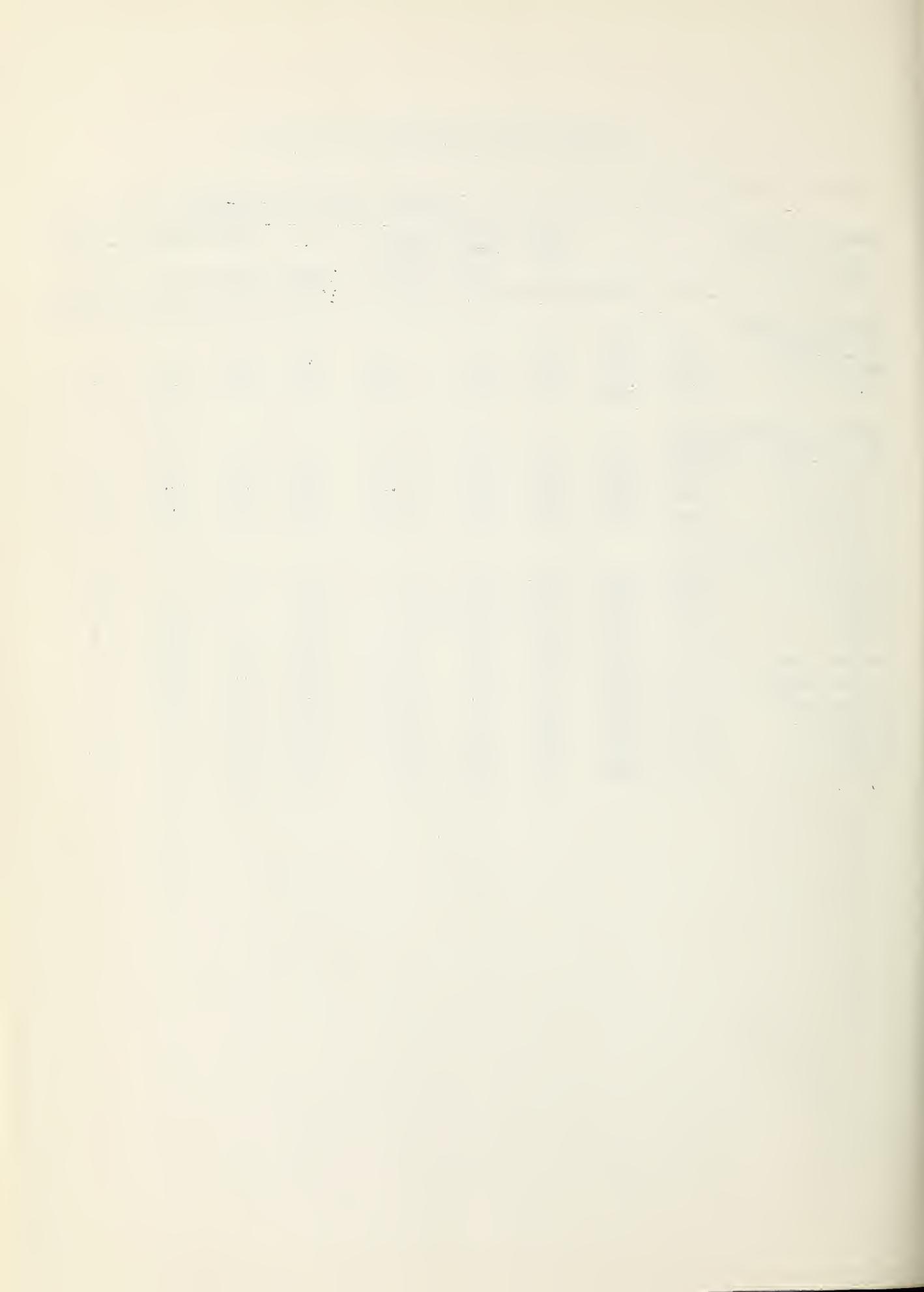
ARIZONA SNOW SURVEY MARCH 15, 1955

		SNOW COVER MEASUREMENTS							
		1955				PAST RECORD			
DRAINAGE BASIN and SNOW COURSE	No.	Date of Survey	Snow Depth (in.)	Water Content (in.)		Water Content (in.)	Years 1954	1953	Average Record
<u>GILA RIVER</u>									
Nutrioso	9-S-4	8500	3/15	0.5	0.2	0.0	0.6	1.6	15
Bear Wallow*	10-T-1	8100	3/15	2.0	0.7	0.0	4.0	2.3	7
Frisco Divide	8-S-1	8000	3/15	0.0	0.0	0.0	1.2	1.3	17
State Line	9-S-8	8000	3/15	0.0	0.0	0.0	0.5	1.9	15
Coronado Trail	9-S-7	8000	3/15	0.0	0.0	0.0	1.2	3.1	15
Beaver Head	9-S-6	8000	3/15	0.0	0.0	0.0	1.3	2.8	15
Taylor Creek	7-S-1	7850	3/15	0.0	0.0	0.0	0.0	0.3	13
Inman	7-S-2	7800	3/15	0.0	0.0	0.0	0.0	0.5	9
Rose Canyon*	10-T-2	7300	3/15	0.0	0.0	0.0	0.0	0.8	7
Mogollon	8-S-2	7000	3/15	0.0	0.0	0.0	0.0	0.0	2
Black Canyon	7-S-3	6790	3/15	0.0	0.0	0.0	0.0	0.0	2
<u>SALT RIVER</u>									
Ft. Apache**	9-R-5	9160	3/14	13.9	4.0	4.5	7.3	7.4	5
Baldy**	9-S-1	9125	3/14	9.7	3.2	2.3	8.4	6.7	5
Maverick Fork	9-S-2	9020	3/14	15.7	4.9	2.1	8.0	7.0	5
Nutrioso	9-S-4	8500	3/15	0.5	0.2	0.0	0.6	1.6	15
Coronado Trail	9-S-7	8000	3/15	0.0	0.0	0.0	1.2	3.1	15
Beaver Head	9-S-6	8000	3/15	0.0	0.0	0.0	1.3	2.8	15
Pacheta	9-S-5	7800	3/15	0.0	0.0	0.0	0.0	2.4	5
Gentry	10-R-5	7600	3/15	0.0	0.0	0.0	-	4.1	5
Heber	10-R-4	7600	3/15	0.0	0.0	0.0	1.9	2.2	5
Canyon Creek	10-R-3	7500	3/15	0.0	0.0	0.0	3.3	3.0	5
McNary	9-R-2	7200	3/15	0.0	0.0	0.0	0.6	1.4	15
Milk Ranch	9-R-1	7000	3/15	0.0	0.0	0.0	0.2	0.7	14
Workman Creek	10-S-1	6900	3/16	0.0	0.0	0.0	4.4	4.7	3
Forest Dale	10-R-6	6430	3/15	0.0	0.0	0.0	0.0	0.4	15
<u>VERDE RIVER</u>									
Happy Jack	11-R-5	7630	Report delayed			0.0	T	3.0	4
Gaddes Canyon*	12-R-4	7600	3/15	9.2	3.1	2.3	-	1.9	1
Mormon Mountain	11-R-3	7500	3/16	11.3	4.6	0.6	1.9	4.3	5
Mormon Lake**	11-R-4	7350	3/15	5.9	2.3	0.3	0.7	5.9	8
Fort Valley**	11-P-2	7350	3/16	1.8	0.5	0.0	0.0	2.5	8
Mingus Mountain	12-R-3	7100	3/15	0.0	0.0	0.0	T	0.8	8
Chalender	12-P-1	7100	3/15	6.8	2.4	0.0	0.3	3.2	8
Casner Park	11-R-2	6930	3/16	0.0	0.0	0.0	0.0	2.2	5
Munds Park	11-R-1	6500	3/16	0.0	0.0	0.0	0.0	1.6	5
Iron Springs**	12-R-2	6300	3/14	0.0	0.0	0.0	0.0	1.0	9
Camp Wood	12-R-1	5700	3/15	0.0	0.0	0.0	0.0	0.5	9



ARIZONA SNOW SURVEY MARCH 15, 1955

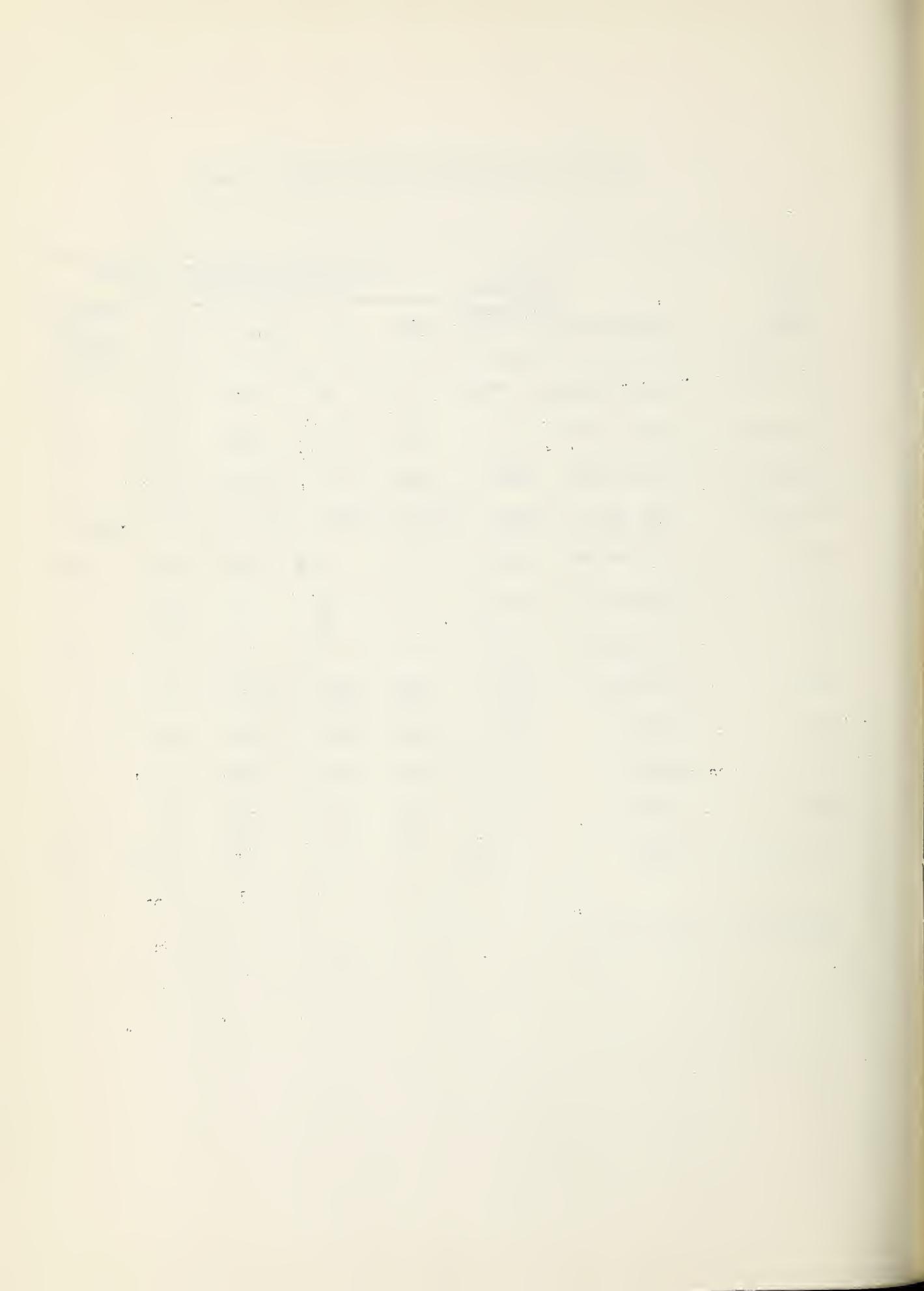
		SNOW COVER MEASUREMENTS						PAST RECORD	
		1955						PAST RECORD	
DRAINAGE BASIN and SNOW COURSE	No.	Date of Elev. Survey	Snow Depth (in.)	Water Content (in.)	1954	1953	Average	Years of Record	
<u>WILLIAMS RIVER</u>									
Iron Springs	12-R-2	6200	3/14	0.0	0.0	0.0	0.0	1.0	9
Camp Wood**	12-R-1	6700	3/15	0.0	0.0	0.0	0.0	0.5	9
Willow Ranch	13-P-1	5000	3/15	0.0	0.0	-	-	0.1	9
<u>LOWER COLORADO RIVER</u>									
Bright Angel	12-N-1	8400	3/15	30.5	8.2	4.6	5.4	10.7	8
Grand Canyon	11-P-1	7500	3/15	5.5	1.9	0.0	0.4	1.9	8
Fort Valley	11-P-2	7350	3/16	1.8	0.5	0.0	0.0	2.5	8
Chalender**	12-P-1	7100	3/15	6.8	2.4	0.0	0.3	3.2	8
<u>LITTLE COLORADO RIVER</u>									
Nutrioso	9-S-4	8500	3/15	0.5	0.2	0.0	0.6	1.6	15
Happy Jack	11-R-5	7630	Report delayed			0.0	T	3.0	4
Gentry	10-R-6	7600	3/15	0.0	0.0	0.0	-	4.1	5
Heber	10-R-4	7600	3/15	0.0	0.0	0.0	1.9	2.2	5
Canyon Creek	10-R-3	7500	3/15	0.0	0.0	0.0	3.3	3.0	5
Mormon Mountain	11-R-3	7500	3/16	11.3	4.6	0.6	1.9	4.3	5
Mormon Lake	11-R-4	7350	3/15	5.9	2.3	0.3	0.7	5.9	8
Fort Valley	11-P-2	7350	3/16	1.8	0.5	0.0	0.0	2.5	8
McNary	9-R-2	7200	3/15	0.0	0.0	0.0	0.6	1.4	15
Forest Dale	10-R-6	6430	3/15	0.0	0.0	0.0	0.0	0.4	15



STATUS OF RESERVOIR STORAGE MARCH 15, 1955

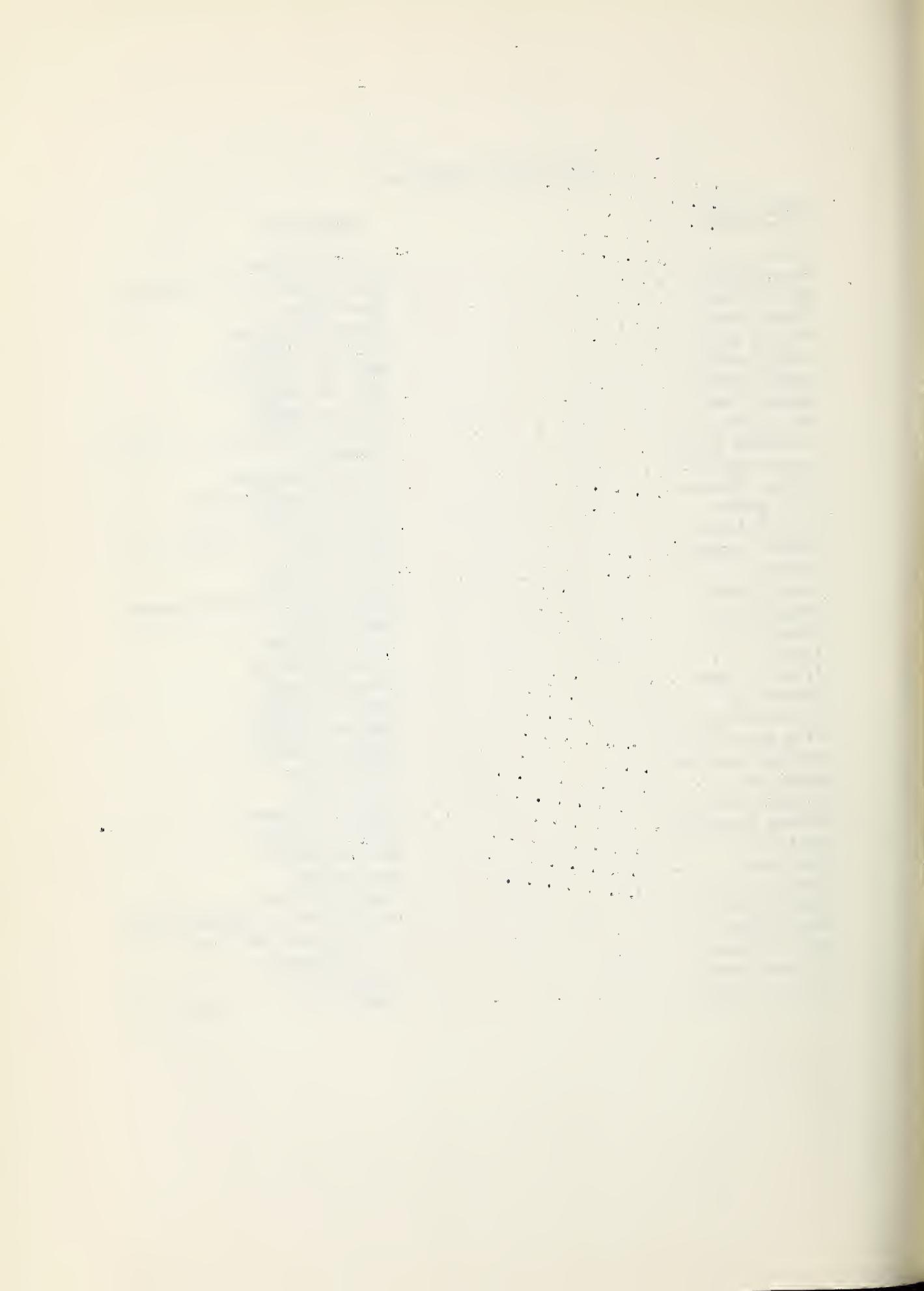
BASIN and STREAM	RESERVOIR	USABLE CAPACITY (Thousand Acre Feet)	THOUSAND ACRE FEET IN STORAGE ABOUT MARCH 15				10-Year Average 1943-52
			1955	1954	1953	1953	
Agua Fria	Lake Pleasant	178	23	32	82	128	21.2
Colorado	Lake Havasu	688	607	600	619	610	617
Colorado	Lake Mohave	1,810	1,736	1,764	1,310	1,601	-
Colorado	Lake Mead	27,217	11,700	15,888	18,025	16,115	18,193
Gila	San Carlos	1,285	31	0.3	17	159	149
Verde	Bartlett	180	73	52	47	152	61
Verde	Horseshoe	143	2	3	1	76	23.8
Salt	Roosevelt	1,382	434	549	1,047	559	430
Salt	Apache	245	243	243	242	217	201
Salt	Canyon	58	55	55	53	46	39
Salt	Saguaro	70	60	57	59	48	36
Little Colo.	Lyman	28.5	2	-	9.4	1.2	7.5*

*Estimated figures 1948



LIST OF SNOW SURVEYORS

<u>SNOW COURSE</u>	<u>SURVEYOR</u>
Baldy	SCS and SRVWU
Bear Wallow	Wm. Hughes & J.R. Brinkley
Beaver Head	Jess Burke
Black Canyon	Robert M. White
Bright Angel	Hillis & Hillis
Camp Wood	Mrs. C. C. Merritt
Canyon Creek	SCS and SRVWU
Casner Park	SCS and SRVWU
Chalender	Oleson, Dougherty, & Gossard
Coronado Trail	Severtson
Forest Dale	Bread & Pipkins
Frisco Divide	U. S. Forest Service
Ft. Apache	SCS and SRVWU
Fort Valley	Rocky Mt. F. & R. Exp. Sta.
Gaddes Canyon	Richard Enz
Gentry	SCS and SRVWU
Grand Canyon	Lynch and Davis and Schuft
Happy Jack	Emil Ryberg
Heber	SCS and SRVWU
Inman	C. H. McCauley
Iron Springs	Ernest Saxby
McNary	Bread & Pipkins
Maverick Fork	SCS and SRVWU
Milk Ranch	Bread & Pipkins
Mingus Mountain	Richard Enz
Mogollon	J. R. Wray
Mormon Lake	Robert G. Garey
Mormon Mountain	SCS and SRVWU
Munds Park	SCS and SRVWU
Nutrioso	Severtson
Pacheta	Foch Phillips
Rose Canyon	Wm. Hughes & J.R. Brinkley
State Line	U. S. Forest Service
Taylor Creek	C. H. McCauley
Willow Ranch	Tiny Miller
Workman Creek	Rocky Mt. F. & R. Exp. Sta.



The following organizations cooperate in the Arizona snow survey work:

FEDERAL

Department of Agriculture

Forest Service
Apache Forest
Coconino Forest
Coronado Forest
Gila Forest
Kaibab Forest
Prescott Forest
Sitgreaves Forest
Rocky Mountain Forest & Range Exp. Station

Soil Conservation Service

Department of Commerce
Weather Bureau
Arizona Section

Department of Interior

Bureau of Reclamation
Region III

Geological Survey
Arizona District

Bureau of Indian Affairs
Fort Apache Reservation

National Park Service
Grand Canyon National Park

Gila Water Commissioner, Safford, Arizona

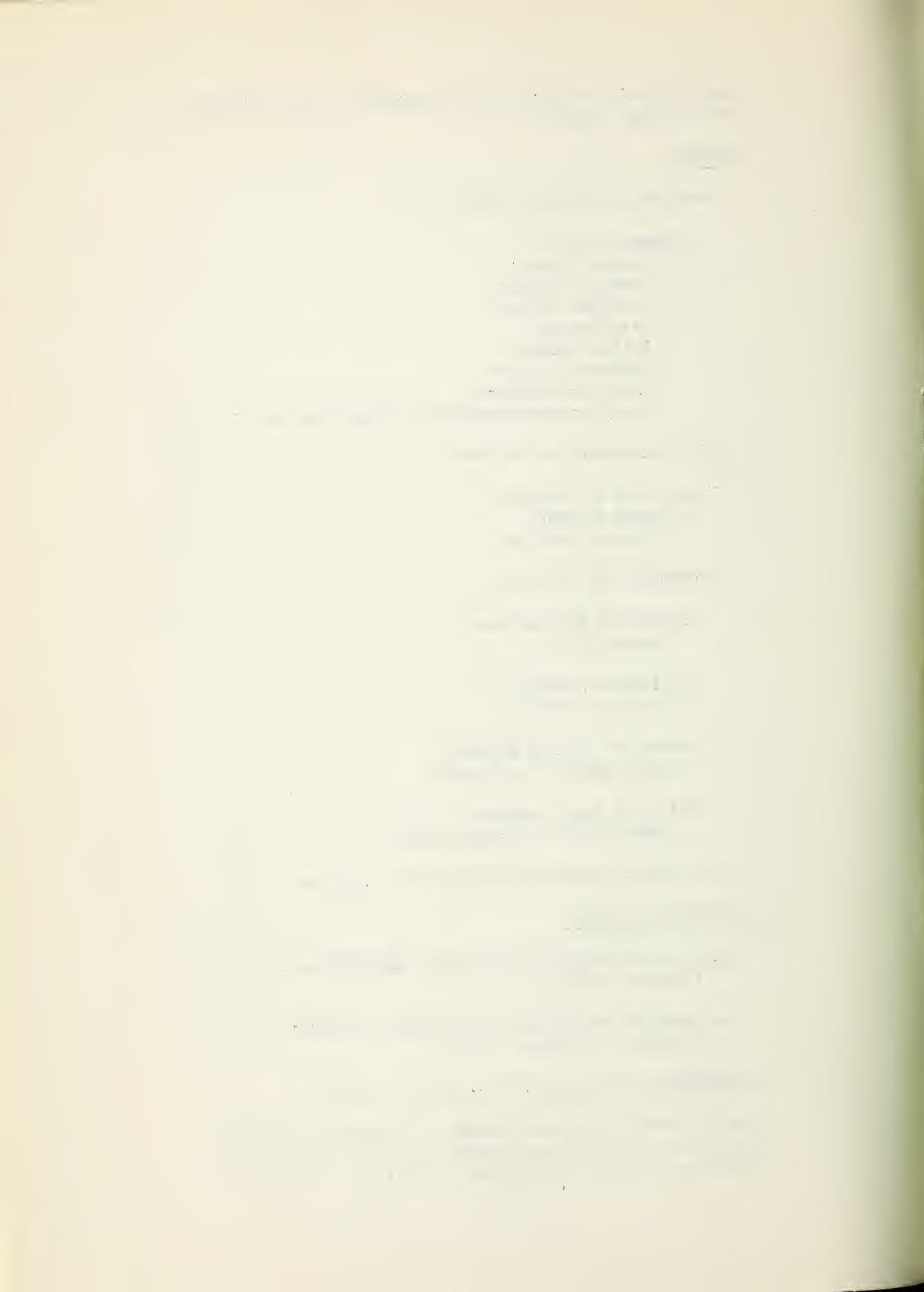
IRRIGATION PROJECTS

Salt River Valley Water Users' Association,
Phoenix, Arizona

San Carlos Irrigation and Drainage District,
Coolidge, Arizona

SOUTHWEST LUMBER MILLS, INC., McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



Federal - State - Private
COOPERATIVE SNOW SURVEYS

—
Furnishes the basic data
necessary for forecasting
water supply for irrigation,
domestic and municipal water
supply, hydro-electric power
generation, navigation,
mining and industry



"WATER IS THE WEST'S GREATEST RESOURCE"